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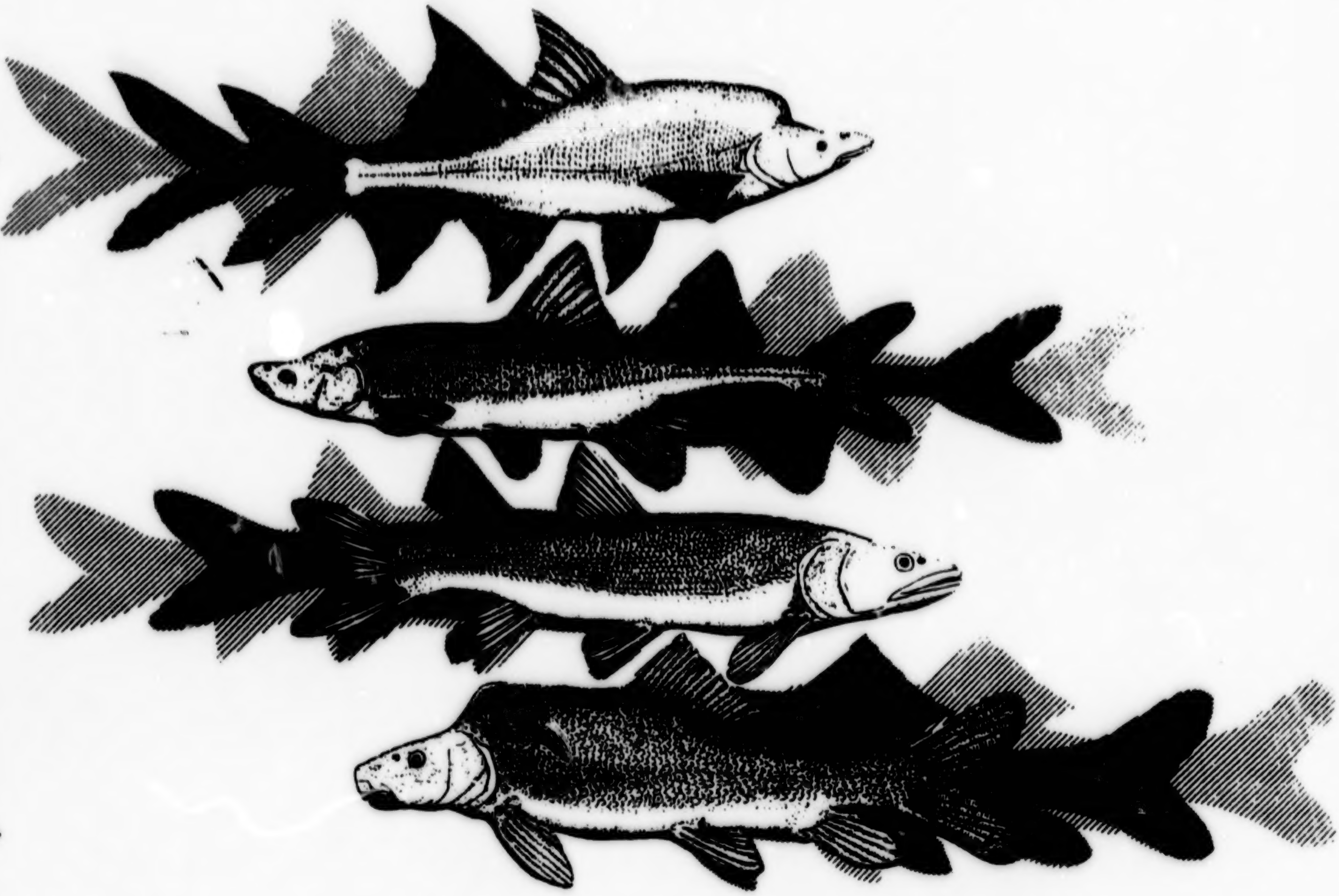

FISCAL YEAR 1999 WORK PLAN

RECOVERY IMPLEMENTATION PROGRAM FOR ENDANGERED FISH SPECIES IN THE UPPER COLORADO RIVER BASIN

United States Department of the Interior
Fish and Wildlife Service
Region 6, Denver, Colorado

September 10, 1998

2000-000770/NF

C

Henry Maddux
Director,
Recovery Program

UPPER COLORADO RIVER
ENDANGERED FISH
RECOVERY PROGRAM

Ralph Morgenweck
Chairman,
Implementation Committee

U.S. Fish and Wildlife Service • P.O. Box 25486 • Denver Federal Center • Denver, CO 80225 • (303) 236-2985 • Fax (303) 236-5262

CO/KS/NE/UT-CR/FY-98
Mail Stop 65115

NOV 25 1998

Memorandum

To: Management Committee, Consultants and Interested Parties
Biology Committee, Consultants and Interested Parties
Water Acquisition Committee, Consultants and Interested Parties
Information and Education Committee, Consultants and Interested Parties

From: Director, Colorado River Recovery Implementation Program

Subject: FY 99 Work Plan

Attached for your information is the Final FY 99 Work Plan as approved by the Implementation Committee on September 10, 1998. We have already distributed a complete package of the final scopes of work for each project in the FY 99 work plan. As in previous years, Table 2 of the attached work plan contains only the budget summary. The comprehensive tables identifying specific funding sources, funding targets, and outyear costs for each project are available to those who need them.

I believe we have developed a sound, aggressive, and challenging plan for implementing recovery activities in FY 99. I sincerely appreciate the efforts of each of you involved in developing and implementing the work plan. If you have questions about this plan, please contact Angela Kantola or myself at extension 221 or 223, the letterhead address, or via electronic mail at Henry_Maddux@fws.gov or Angela_Kantola@fws.gov.

HENRY R. MADDUX

Attachment

cc: Implementation Committee and Interested Parties
Flooded Bottomland Restoration Program Interested Parties
Researchers
Interested Parties

U.S. Fish and Wildlife Service • U.S. Bureau of Reclamation • Western Area Power Administration • Colorado • Utah • Wyoming
Environmental Defense Fund • National Audubon Society • Colorado Wildlife Federation • Wyoming Wildlife Federation
Colorado Water Congress • Utah Water Users Association • Wyoming Water Development Association • Colorado River Energy Distributors Association

PREFACE

This document describes the work plan and budget of the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) for Fiscal Year (FY) 1999, which begins October 1, 1998. The Colorado River Implementation Committee approved this work plan on September 10, 1998. Members of the Implementation Committee are:

Ralph Morgenweck, Regional Director, Fish and Wildlife Service, Denver, Colorado
Rick Gold, Deputy Regional Director, Bureau of Reclamation, Salt Lake City, Utah
Wade Buchanan, Executive Director, Colorado Department of Natural Resources
Kathleen Clarke, Executive Director, Utah Department of Natural Resources
Jeff Fassett, Wyoming State Engineer
David Sabo, Area Manager of Environmental Affairs, Western Area Power Administration, Salt Lake City, Utah
Dan Luecke, Representative, Environmental Groups
Tom Pitts, Representative, Upper Basin Water Users
Leslie James, Executive Director, Colorado River Energy Distributors Association (nonvoting)
Henry Maddux, Colorado River Recovery Program Director, Fish and Wildlife Service, Denver (nonvoting)

This work plan is a compilation of more than 90 scopes of work prepared by State and Federal agencies, universities, private contractors, and Recovery Program staff and administrators. Recovery Program staff and technical and Management committees of the Implementation Committee were responsible for assessing the status of ongoing activities and evaluating project proposals submitted for consideration for funding in FY 99. The work plan was developed to carry out recovery activities identified in the Program's "Recovery Action Plan ("RIPRAP"), dated March 6, 1998.

Lead agencies will implement activities identified in the work plan over the next several months. The goal is to have contracts issued and funds allocated for all identified activities by the end of the first quarter (December 1998) of FY 99.

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1. BACKGROUND AND FY 99 BUDGET

A primary responsibility of the Colorado River Recovery Implementation Committee is to develop and recommend priorities for the annual use of funds under the Recovery Program. The Recovery Program's established annual budget in FY 99 is \$3.2 million. This is a 2.3 percent increase (based on the 1997 Consumer Price Index) over the \$3.18 million FY 98 budget. Additional funding expected from other agency contributions and Section 7 funds brings the total FY 99 annual budget to \$4.44 million. Funds from Reclamation for capital projects in FY 99 are expected to total \$7.628 million, bringing the total FY 99 Recovery Program budget to \$12.06 million.

	(Established Annual Funds Contribution)	Expected Contribution	Capital Project Funds
ANNUAL FUNDS			
Fish and Wildlife Service	(\$846,800)	\$1,144,000[1]	
Bureau of Reclamation	(\$2,119,000)	\$2,119,000	\$7,628,000
State of Colorado	(\$146,900)	\$867,000[2]	
State of Utah	(\$103,100)	\$172,800[3]	
State of Wyoming	(\$32,700)	\$37,700[4]	
OTHER FUNDS			
Water Users Section 7 Funds		\$95,900	
TOTAL	**\$3,248,500**	**\$4,435,500**	**\$7,628,000**

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[1] In addition to \$636,000 in resource management funds and \$200,000 in Section 6 funds, the Service expects to provide \$308,000 for Ouray hatchery/refugia operation.

[2] In addition to their established annual contribution, Colorado will provide \$150,900 for instream flow protection activities, \$424,000 for studies of compact allocation (CRDSS), \$30,000 for CRDSS on the Little Snake River, \$100,200 for Colorado River pond reclamation, and \$15,000 for coordinated reservoir operations.

[3] In 1997, the Utah Department of Natural Resources (UDNR) and the Central Utah Water Conservancy District agreed to split \$74,000 of FY 94 and FY 95 funding obligations for research related to Flaming Gorge Reservoir. The Management Committee agreed that UDNR's portion of this split (\$37,000) could be taken from their FY 98 and FY 99 obligations to the Recovery Program. Therefore, Utah's contribution is reduced by \$18,500 in FY 99. However, Utah also is providing an additional \$13,200 for bonytail reintroduction (project #25) and \$75,000 for the Wahweap hatchery.

[4] In addition to their regular contribution, Wyoming is expected to contributed \$5,000 in in-kind services on project #71a, refinement of the Colorado CRDSS model to better reflect Little Snake River depletions and flows.

Table 1. Process and schedule for development of the Annual Recovery Program Work Plan (dates are approximate)

Date	Activity
11/1	Early Program Guidance due from Program Director.
12/10	Annual project reports from principal investigators due to Program Director.
1/20	Annual reporting/researchers' meeting held no later than this date.
2/1	Due from Program Director to technical committees (and their consultants and interested parties) and Management Committee: o Annual Recovery Program summary progress and budget report (Annual Program Report) o Draft revised RIPRAP, and o Draft Program guidance (including recommendations for new, ongoing, and ongoing-revised projects)
2/15	Technical committees' review/recommendations on Annual Program Report, draft revised RIPRAP, and draft Program Guidance due to Management Committee.
2/28	Management Committee review/recommendations on Annual Program Report, draft revised RIPRAP, and draft Program Guidance due to Implementation Committee.
3/6	Implementation Committee approval.
3/6	Program Director issues revised RIPRAP and annual Program Guidance.
3/10	Scopes of work for new projects due from principal investigators to Program Director. Coordinators begin working (with peer reviewers, technical advisory panels, and principal investigators) to review and refine new scopes of work.
4/30	Revised and ongoing technical scopes of work due from principal investigators to Program Director. Coordinators begin working (with technical advisory panels and principal investigators) to develop recommended annual technical work plans.
6/20	Recommended annual technical work plans and refined technical scopes of work due from Program Director to technical committees.
7/1	Program management scopes of work due from agencies to Program Director.
7/15	Technical committees meet to discuss recommended annual technical work plans drafted by Program Director.
7/20	Technical committees' review/recommendations on recommended annual technical work plans due to Management Committee. Recommended annual Program management work plan due from Program Director to Management Committee.
8/10	Management Committee meeting to discuss recommended technical and Program management annual work plans and approve projects for draft Annual Work Plan.
8/25	Draft Annual Work Plan due to Implementation Committee.
9/10	Implementation Committee approval.
10/30	Final scopes of work for Annual Work Plan distributed to Program participants.
12/1	Final Summary Annual Work Plan distributed to Program participants.

2. WORK PLAN DEVELOPMENT PROCESS

Table 1 on the previous page outlines the schedule for developing and implementing the Recovery Program's annual work plan. Projects in the FY 99 work plan are designed to implement the priority recovery actions identified in the Recovery Implementation Program Recovery Action Plan (RIPRAP). The RIPRAP is the operational plan for implementing the Recovery Program that identifies the actions necessary to recover the endangered fishes in the Upper Basin.

3. FY 99 WORK PLAN HIGHLIGHTS

Table 2 (beginning on page 10) summarizes the Program's FY 99 budget and work plans. Appendix A provides a brief narrative description of each project (detailed scopes of work for each project are available from the Program Director's office). Major areas of emphasis in the FY 99 work plan are outlined by recovery element below.

3.1 Identify, Provide and Protect Instream Flows - Roughly 30% of the FY 99 budget is dedicated to identifying and protecting instream flows needed to provide habitat for the endangered fishes.

A. Instream Flow Protection

The most expensive flow protection activity in FY 99 is Grand Valley water management at approximately $2 million. This project involves improvements to canals in the Grand Valley irrigation project that will reduce the demand on the river and provide storage in Green Mountain Reservoir, resulting in up to 30,000 acre-feet of water for the endangered fish. Work on this project is behind schedule due to continuing negotiations on future water development and long-term protection of instream flows in the Grand Valley, but Reclamation and other Program participants are working diligently to get it on track as quickly as possible. The Management Committee will review the project's progress at mid-year to determine if its FY 99 funds will be spent in FY 99. If not, some of these funds may be directed to other capital projects.

Other flow protection activities in the Grand Valley area of the Colorado River include: 1) continued coordination of operation of reservoirs in the upper reaches of the Colorado River to provide additional spring peak flows to enhance endangered fish spawning habitat; and 2) a new project to explore additional management options for providing more water to the 15-Mile Reach during high spring flow period and the summer/early fall low flow period from water facilities in Division #5; and 3) negotiations on a 15-year contract to provide an additional 21,650 acre-feet of water per year for the endangered fish from Ruedi Reservoir. In the Yampa River, the Yampa River Basin Recovery and Water Management Plan is underway to provide and protect the instream flows and habitat needed to maintain and recover the endangered fishes, protect other native fish and wildlife resources, and provide water for existing and future human needs in the Yampa River Basin. In FY 99, a synthesis report on endangered fish flow needs, human population and water use projections, and instream flow scenarios is being prepared. Program participants will use the results of this report to determine the direction that the Yampa Management Plan should take. Also on the Yampa River, agreement has been reached with the Colorado Division of Parks to lease 2,000 acre-feet of water from Steamboat Lake to augment late summer flows. In FY 98, the Service withdrew its support for the instream flow filings for the 15-Mile Reach. The Program will need to reassess its direction with regards to instream flow filings as part of the annual revisions to the RIPRAP in FY 99. Meanwhile, the Colorado Water Conservation Board (CWCB) will continue to seek to resolve objections to its applications for instream flow filings on the Colorado and Yampa rivers and to begin review of flow recommendations for the Gunnison River and the Colorado River above the 15-Mile Reach. Colorado also will use its Colorado River Decision Support System (CRDSS) to assess legal and physical availability of water and compact considerations for the Yampa, Little Snake, White, Colorado, and Gunnison rivers. Other instream flow protection activities in FY 99 include consultant services to evaluate/appraise water rights, hydrology support, and operation of gages to monitor flows.

B. Instream Flow Identification

Instream flow identification activities for FY 99 focus on: 1) wrap-up of final reports on the Flaming Gorge and Aspinall studies and preparation of biological opinions; 2) continued work to identify flow needs in the Duchesne River; and 3) channel monitoring to evaluate geomorphic changes on the mainstem Colorado River resulting from coordinated reservoir operations.

3.2 Habitat Restoration - This recovery element is focused on restoring endangered fish habitat by providing fish passage around dams and diversions and restoring or enhancing natural floodplain functions. Approximately 34% of the FY 99 budget is dedicated to this work.

A. Fish Passage

Operation and maintenance of the completed Redlands fish passage structure will continue. This passage has restored fish access to 57 miles of the Gunnison River. The Bureau of Reclamation will report options for constructing passage at the Hartland diversion, which would restore access to an additional 15 miles of the Gunnison River. Construction of fish passage at the Grand Valley Irrigation Company diversion structure was completed in FY 98, providing access to an additional 3 miles of habitat in the Colorado River. Evaluation of the success of this structure will be completed in FY 99. Work to provide fish passage at Price Stubb and the Roller Dam continues in FY 99. Passage at these facilities will restore fish access to an additional 5.4 miles and 47 miles of the Colorado River, respectively. On the Green River, the Utah Division of Wildlife Resources will complete their study to determine if Tusher Wash Diversion restricts native fish movement or entrains native fish.

B. Floodplain Habitat Restoration

The purpose of the Floodplain Habitat Restoration Program is to restore, enhance, and protect natural floodplain functions that support recovery of the endangered fishes. The program seeks long-term floodplain protection via land acquisition; floodplain restoration/enhancement via levee removal; evaluation of results and an adaptive management feedback loop.

The Program will continue to seek to acquire easements or fee title to lands for floodplain restoration in FY 99. Levee removal during FY 99 will depend on the outcome of a synthesis report of FY 96-FY 98 data from levee removal evaluation studies. Old Charley Wash will be operated for nonnative fish removal or for growout of wild and/or hatchery-produced razorbacks, depending on river hydrology. On the Colorado River, the Gravel Pit at 29 5/8 Road and the Jarvis site are being reconfigured to minimize benefits to nonnative fishes while providing surrogate floodplain habitat for seasonal use by endangered fishes. Both sites will be monitored in FY 99 to evaluate use by endangered and native fishes, and to evaluate nonnative fish removal techniques. Data from studies at Walter Walker to evaluate effectiveness of freshening flows in reducing selenium levels will be analyzed and draft and final reports prepared. Finally, a weed control plan will be developed for Program floodplain restoration activities to address concerns regarding proliferation of the exotic weed giant whitetop (*Lepidium latifolium*).

3.3 Reduce Nonnative Fish and Sportfish Impacts - The goal for nonnative fish control and management in the Upper Colorado River Basin is to reduce the adverse impacts of nonnative fishes on the endangered fishes. It is not likely that nonnative fishes which have become established in the Upper Colorado River Basin can be eliminated. Therefore, the objectives of this recovery element are to: 1) implement preventive measures; and 2) develop an active control program. Both objectives are being implemented through a Nonnative Fish Control Strategic Plan. Roughly 6.4% of the Recovery Program's FY 99 is targeted for this work.

Nonnative fish control activities in FY 99 will include: 1) preparation of a report on removal of centrarchids and channel catfish from a 20-mile reach of the Green River near Ouray and removal of channel catfish from a 10-mile reach in Gray Canyon; 2) reduction of centrarchid sportfish sources through reclamation of ponds along the Colorado and Gunnison rivers (pond reclamation involves removal of nonnative centrarchids, installation of screening devices, and stocking with either endangered fishes or sportfishes that will not threaten the endangered fish populations); 3) removal of small nonnative cyprinid fishes from the lower Colorado and Green rivers in Utah and from the Colorado and Gunnison rivers in Colorado; 4) removal of channel catfish from Yampa Canyon and removal of nonnative fish from the upper Yampa River; and 5) removal of nonnative centrarchid fishes from the Colorado River. Although these projects target certain species, all nonnative fish species captured during these efforts will be removed.

3.4 Propagation and Genetics Management - This element supports recovery by producing genetically acceptable hatchery fish for reintroduction to the wild and conserving the genetic diversity present in wild fish in refugia populations. Roughly 9.4% of the Recovery Program's FY 99 budget will be spent in this area.

In FY 99, the Recovery Program will complete development of propagation facilities at Ouray National Fish Hatchery, Wahweap, and Grand Valley. Development of broodstock and stocking endangered fishes in selected areas will continue. Specific activities include: 1) continued experimental stocking of bonytails in the Colorado River; 2) additional stocking and continued evaluation and monitoring of experimentally stocked razorback suckers in the Green and Gunnison rivers; 3) moving wild adult Colorado squawfish into the Palisade to Rifle reach of the Colorado River; 4) operation and maintenance of existing hatchery/refugia facilities; 5) development of a diet appropriate for intensive Colorado squawfish culture; and 6) completion of additional facilities and growout ponds to meet Program propagation requirements.

3.5 Research, Monitoring, and Data Management - The Program conducts research in support of recovery activities, monitors the status and trends of the endangered fish populations, and manages an archive of data collected on the endangered fishes. Approximately 6.7% of the Program's budget will be used for these purposes in FY 99.

Revision and expansion of the interagency standardized monitoring program (ISMP) continues in FY 99. Humpback chub populations will be monitored at Yampa Canyon, Black Rocks, Westwater, Desolation/Gray Canyon, and Cataract Canyon, with population estimates being developed at the first three sites. Population estimates of Colorado squawfish stocks will be made in the Green and upper Colorado river reaches. Squawfish also will be monitored in the White and Yampa rivers. Razorback suckers will be monitored basinwide. Population estimates are essential in determining population status as it relates to management objectives and general population trends as riverine habitat is improved through other Program activities. An outside expert will be hired in FY 99 to help refine this work on population estimates. Data management will continue in FY 99 and larval fish identification will support the ISMP and several other studies. Finally, a "white paper" will be developed discussing the importance of tributaries in the recovery of the endangered fishes.

3.6 Information, Education, and Public Involvement - In FY 99, just over 1% of the Recovery Program budget will go toward activities to promote public understanding, appreciation, and support for endangered fish recovery efforts, and to involve affected local communities in Recovery Program decision-making processes.

The FY 1999 information and education scope of work includes producing the Recovery Program newsletter, issuing news releases, developing the Congressional briefing packet, producing an abbreviated annual report, producing additional field identification cards, developing videotape footage, and maintaining web pages for the public.

Public involvement plans will be implemented for the following projects: Utah recovery activities and flow protection; Colorado pond reclamation; Colorado River coordinated reservoir operations; Colorado instream flow protection; capital improvement projects in the Grand Valley area; Ruedi Reservoir and Flaming Gorge releases; floodplain restoration program; and the Yampa River Basin Recovery and Water Management Plan. Also, a specific effort will be made to improve coordination of public involvement related to these activities in the Colorado and Green rivers. The purpose of the public involvement plans is to better inform interested audiences about Recovery Program actions and give them opportunities for input into Program decisions. (For a summary of each public involvement plan, please see Appendix A, Section VI, of this document.)

3.7. Program Management - Program management activities include: 1) planning, support, and coordination of Program activities by the Program Director and his staff; and 2) coordination of State/agency Program activities and participation in technical committees by Utah, Colorado, Wyoming, and Reclamation. Proposed Program management costs are approximately 12.4% of the total FY 99 Recovery Program budget.

4. WATER USER (SECTION 7) FUNDS

Under the Recovery Program, water project proponents in the Upper Colorado River Basin who enter Section 7 consultation with the Service make a one-time contribution of $10/acre foot (adjusted annually for inflation) of a project's average annual depletion (see Section 5.3.4 of the Recovery Program). In FY 99 the depletion charge will be $14.13/acre foot. Under a June 1989 Cooperative Agreement, these funds are transferred to the National Fish and Wildlife Foundation (Foundation), a nonprofit group which holds the funds in an interest bearing account. Funds are contributed by project proponents directly to the Foundation. The Foundation uses the funds, at the direction of the Service, to accomplish research and recovery activities for the endangered fishes in accordance with priorities recommended by the Implementation Committee.

In August 1989, the Implementation Committee adopted the position that funds gained under the Recovery Program should generally be reserved for water rights acquisition and directly related activities (for example, yield analyses, appraisals, but specifically excluding development of flow recommendations). The Implementation Committee's position was designed to generate the maximum amount of "private" revenues for matching congressional appropriations for water rights acquisition. Based on the flexibility of the Implementation Committee's position, the Management Committee has subsequently approved use of some Section 7 funds for recovery activities (primarily propagation/genetics activities) other than water acquisition.

4.1. Funds status

The amount of Section 7 funds available as of October 1, 1998, is approximately $180,000. These funds are maintained in the National Fish and Wildlife Foundation interest-bearing account, as explained above. Projected FY 99 expenditures ($95,900) will leave an estimated balance of $84,100 plus additional depletion payments deposited and interest earned in FY 98 and FY 99.

4.2. Projects funded with Water User (Section 7) funds

Seven projects totaling up to $95,900 will be funded with Colorado River Section 7 funds in FY 99. These are:

a. Operation and maintenance of gages in and below the 15-Mile Reach ($4,500).

b. Services of a consultant to evaluate water rights offered to or sought by the Recovery Program (up to $20,000).

c. Lease of water from Steamboat Reservoir ($32,000).

d. Operation and maintenance of gages on the Duchesne River ($11,200).

e. Operation and maintenance the gage below Redlands on the Gunnison River ($9,200).

f. Peer review of scopes of work and project reports containing geomorphological components related to habitat needs and instream flow requirements ($10,000).

g. Operation and maintenance of gages on the Yampa River ($9,000).

5. FY 88 APPROPRIATION FUNDS[1]

The Recovery Program "Blue Book" called for a minimum of $10 million to purchase water rights to establish instream flows for the endangered fishes and $5 million for capital construction projects such as fish passage and hatcheries. In 1988, Congress appropriated $1 million to Reclamation for acquiring water rights. These funds were subsequently transferred to the Service to administer. All of the $1 million was obligated in FY 91-98 as follows: $4,700 assessed for Service overhead; $61,500 to lease flows from Steamboat Lake for the Yampa River (FY 91, 92, & 97); $350,000 on Grand Valley water management (FY 93 & 94); $40,000 for Yampa River flow protection; $142,500 for water management and reservoir reoperation to provide/enhance flows in the mainstem Colorado River in FY 94 ($42,500 for Collbran and operations, $50,000 for Silt operations, and $50,000 for coordinated reservoir operation);

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[1] The FY 88 appropriation funds have also been referred to in previous years' work plans as "capital" funds. The annual work plan no longer uses the term "capital" in reference to the $1 million FY 88 appropriation to avoid confusion with Reclamation's annual contribution of funds for capital construction projects ($7.62 million in FY 99).

$111,400 for hydrology support for water acquisition activities (FY 95-98); $67,100 for Duchesne River water availability and hydrology studies (FY 96); $148,800 for Duchesne River biological studies (FY 97); and up to $74,000 for Program management costs related to water acquisition (FY 97). The Service is reviewing this account to determine what, if any, portion of these obligations were not expended and may be available for other Program activities.

6. RECOMMENDATIONS

The Implementation Committee recommended the following list of "contingency" projects should additional funds become available in FY 99. If additional funds become available, they may be used to fund projects on these lists, subject to review by the technical and Management committees.

ANNUAL FUNDS

$39,400 to monitor a second site on Green River for young-of-year squawfish population and survival estimates. (#22e).

$21,000 for study of distribution of hatchery-reared razorback suckers (#90).

$10,000 for collection and transport of razorback broodstock from Lake Mohave, should this be the recommendation of the Biology Committee. (#29d)

Baseline population estimates required by 15-Mile Reach programmatic biological opinion (need and cost unknown at this time).

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FY 99 Work Plan Working Budget Summary (minor revisions still expected) 11/25/98

PROJECT	PROJECT		FY 1999	FY 1999	FY 1999	FY 1999	FY 1999	FY 1999
NUMBER	TITLE	COMMITTEE	TOTAL	ANN. FUNDS	CAP. FUNDS	SEC. 7 FUNDS	IN-KIND/OTHER	COMMENTS
I. Instream Flow Identification and Protection		29.82%	$3,570,400	$336,400	$2,513,200	$95,900	$624,900	
8	15-mile Reach Gage O&M	WAC	$4,500			$4,500		
9	Water Right Acquisition Consultant	WAC	$20,000			$20,000		Up to $20,000.
19H	Water Acquisition Hydrology Support	WAC	$50,800	$50,800				Funded a portion from FY 98 funds in the past; could do so again IF any funds remain.
67	Steamboat Lake Water Lease	WAC	-$32,000			$32,000		If available, could use FY 98 funds instead of Sec. 7 funds.
70	Colorado Instream Flow Protection	WAC	$185,000	$34,100			$150,900	
71	Colorado River Decision Support Sys.	WAC	$424,000				$424,000	
71a	CRDSS Refinement: Little Snake River	WAC	$35,000				$35,000	
96	Duchesne River Gages O&M	WAC	$11,200			$11,200		
CAP-4c	Gage below Redlands Dam	WAC	$9,200			$9,200		
CAP-11	Grand Valley Water Management	WAC	$2,015,200		$2,015,200			
CAP-14	Coordinated Reservoir Operation	WAC	$50,000		$35,000		$15,000	
94/CAP24	Duchesne Coord Resv. Operations	WAC	$50,000		$50,000			
CAP-25	Facilities Management Options for Colo. River Water Division #5	WAC	$200,000		$200,000			
17	Green & Yampa River Chan. Mon.	BC/WAC	$30,200	$30,200				Funding targets likely to change.
19b	Biology Hydrology Support	BC	$53,900	$53,900				
63	Flaming Gorge Integration rpt.	BC	$10,000	$10,000				
64	Aspinall Synthesis of Studies	BC	$0	$0				Program has already paid for completion of these studies; funds were carried over to complete the work.
84	Duchesne River Biological Studies	BC	$157,400	$157,400				SOW development for this project needs to get back on regular schedule in FY 2000.
85	Colorado R. Chan. Mon. (15-M Reach)	BC/WAC	$16,400		$16,400			
86	Peer Review of Geomorphology	BC/WAC	$10,000			$10,000		If additional funds are needed (e.g., for review of Flaming Gorge reports), PI will request additional Section 7 funds through the WAC.
CAP-9	Yampa Operation Plan	BC/WAC	$205,600		$196,600	$9,000		
II. Habitat Restoration		34.10%	$4,082,100	$177,800	$3,904,300	$0	$0	
CAP-4b	Redlands Fish Passage	BC	$79,800	$79,800				
CAP-17b	GVIC Fish Passage Evaluation	BC	$28,300		$28,300			
CAP-5	Price-Stubb Fish Passage	BC	$675,000		$675,000			
CAP-16	Tusher Wash Div. Structure Studies	BC	$15,000		$15,000			

			[redacted]					
PROJECT	PROJECT		FY 1999	FY 1999	FY 1999	FY 1999	FY 1999	FY 1999
NUMBER	TITLE	COMMITTEE	TOTAL	ANN. FUNDS	CAP. FUNDS	SEC. 7 FUNDS	IN-KIND/OTHER	COMMENTS
CAP-23	Grand Valley Project Fish Passage	BC	$420,000		$420,000			
CAP-26	Hartland Fish Passage	BC	$50,000		$50,000			
96/CAP6SE	Selenium effects on razorbacks	BC	$43,400	$43,400				
97	Selenium effects on RBS vs. other natives	BC	$31,900	$31,900				
75	Floodplain Protection	BC	$0	$0				
CAP-6	Floodplain Restoration Program (T=2,738,700)	BC						
	Contaminants site screening	BC	$84,300		$84,300			
	Environmental compliance	BC	$50,000		$50,000			
	Hydrology/geomorphology	BC	$150,000		$150,000			
	Land acquisition	BC	$1,963,600		$1,963,600			
	Old Charley nonnative fish removal	BC	$9,000		$9,000			
	Walter Walker selenium remediation	BC	$48,000		$48,000			
	Gravel Pit native/nonnative fish evaluation	BC	$44,900		$44,900			
	Green River levee removal evaluation	BC	$366,200		$366,200			
	Effects of FBR on white-top distr.	BC	$22,700	$22,700				
III. Reduce Nonnative Fish and Sportfish Impacts		6.37%	$762,200	$402,200	$259,800	$0	$100,200	
59	Green River Nonnative Fish mgmt.	BC	$20,000	$20,000				
87	Small Nonnative Cyprinid Removal	BC						
87a	Cyprinid removal - Utah	BC	$87,500	$87,500				
87b	Cyprinid removal - Colorado	BC	$54,000	$54,000				
88	Yampa Channel Catfish Removal	BC	$90,800	$90,800				
89	Colorado R. Centrarchid Removal	BC	$56,200	$56,200				
98	Yampa River Nonnative Fish Control	BC	$93,700	$93,700				
CAP-18	Colorado River Pond Reclamation	BC	$272,000		$171,800		$100,200	
CAP-20	Highline screening	BC	$88,000		$88,000			Cost will likely increase.
IV. Propagation & Genetics Management		9.40%	$1,126,900	$420,300	$316,000	$0	$396,200	
26	Bonytail Introduction	BC	$96,000	$82,800			$13,200	
29	O&M Propagation Facilities	BC						
29a	Grand Valley	BC	$210,800	$210,800				
29d	Ouray	BC	$308,000				$308,000	
29c	Wahweap	BC	$83,000	$83,000				

PROJECT NUMBER	PROJECT TITLE	COMMITTEE	FY 1999 TOTAL	FY 1999 ANN. FUNDS	FY 1999 CAP. FUNDS	FY 1999 SEC. 7 FUNDS	FY 1999 IN-KIND/OTHER	FY 1999 COMMENTS
29f	Adult razorback collection	BC	$21,200	$21,200				
93	Gila hybridization	BC	$0					FY 98 work has been delayed (to be completed in FY 99 w/ FY 98 funds). Program discontinued funding in FY 99.
CAP-7	Expansion of Facilities	BC						
	Grand Valley Endangered Fish Facility	BC	$100,000		$100,000			
	Ouray National Fish Hatchery	BC	$50,000		$50,000			
	PIT tags and readers for augmentation stocking	BC	$90,000		$90,000			
	Wahweap State Hatchery	BC	$150,000		$75,000		$75,000	
99	Develop larval CSF diet	BC	$16,900	$16,900				
100	Hatchery facilities review	BC	$0					
NEW	Eval. CSF stocking/translocation: Palisade-Rifle	BC		$5,600				Awaiting BC recommendation (priority of work vs. potential to impact population estimate).
V. Research, Monitoring & Data Management		6.73%	$806,300	$806,300	$0	$0	$0	
15	Larval Fish Lab Identification	BC	$50,000	$50,000				
16	Database Management	BC	$34,500	$34,500				
22	ISMP (733.7K total)	BC						
22a	FWS, Adult CSF monitoring	BC	$26,000	$26,000				
22a2	CSF population monitoring	BC	$44,000	$44,000				
22a3	HBC Population estimate in Black Rocks	BC	$20,000	$20,000				
22a4	HBC Population estimate in the Yampa River	BC	$21,000	$21,000				
22b	CDOW ISMP on Colorado, White & Yampa	BC	$31,300	$31,300				
22c	UDWR, Salt Lake City	BC	$161,000	$161,000				
22d	Razorback Basinwide Monitoring	BC	$216,000	$216,000				
22e	Green R. YOY CSF pop. & surv. estimates	BC	$27,000	$27,000				PD: This study may not be funded, depending on total annual funds available.
22f	Yampa, lower Green, & lower Colo. CSF larval abundance	BC	$76,800	$76,800				PD: A portion of this study may not be funded, depending on total annual funds available.
50	Eval. of razorback sucker stocking	BC	$52,800	$52,800				
22g	Assessment of ISMP	BC	$10,000	$10,000				
101	Contribution of tributaries to recovery	BC	$25,000	$25,000				
102	Maintain IMO model	BC	$10,900	$10,900				

FY 99 Work Plan Working Budget Summary (minor revisions still expected)

11/25/98

			[redacted]					
PROJECT	PROJECT		FY 1999	FY 1999	FY 1999	FY 1999	FY 1999	FY 1999
NUMBER	TITLE	COMMITTEE	TOTAL	ANN. FUNDS	CAP. FUNDS	SEC. 7 FUNDS	IN-KIND/OTHER	COMMENTS
VI. Information, Education & Public Involvement		1.16%	$139,400	$28,200	$111,200	$0	$0	
PIP-1	Colorado instream flow protection PIP	IE	$0	$0				
PIP-12/13	Utah combined public involvement (including Duchesne)	IE	$200	$200				Colorado will provide $12,500 in-kind funding.
12	General Information and Education	IE	$28,000	$28,000				
PIP-3	Yampa Management Plan PIP	IE	$1,000		$1,000			
PIP-4	Grand Valley capital improvements PIP	IE	$30,000		$30,000			
PIP-5	Coord. Resv. Operations PIP	IE	$4,200		$4,200			
PIP-6	Ruedi Reservoir PIP	IE	$10,000		$10,000			
PIP-7	Flaming Gorge operations PIP	IE	$56,000		$56,000			
PIP-8	Floodplain restoration program PIP	IE	$0					SOW seems to indicate that the $16.9K is already be incorporated in CAP-6.
PIP-10	Pond Reclamation public involvement	IE	$0		$0			
PIP-14	Coordinated public involvement	IE	$10,000		$10,000			
VII. Program Management		12.41%	$1,486,400	$1,105,400	$381,000	$0	$0	
1	Utah Program Management	MC	$71,100	$71,100				
2	Reclamation Program Management	MC	$150,000	$150,000				
3	Service Program Management	MC	$762,300	$762,300				
4	Colorado Program Management	MC	$110,000	$110,000				
5	Wyoming Program Management	MC	$12,000	$12,000				
CAP-21	Capital Projects Coordination	MC	$381,000		$381,000			
	Estimated admin. overhead on ANNUAL funds transferred from BR to FWS.	MC	$0					Last estimated at $104,100, now incorporated project fund columns.
TOTAL			$11,972,700	$3,276,600	$7,484,500	$95,900	$1,121,300	
AVAILABLE				$3,219,200	$7,628,000			
DIFFERENCE (Negative numbers in parentheses)				($57,400)	$143,500			

KEY TO ABBREVIATIONS: BC=Biology Committee; MC=Management Committee; WAC=Water Acquisition Committee; IE=Information & Education Committee; PD=Program Director; PD Resp.=Program Director's response.

--------- APPENDIX A: FY-99 PROJECT DESCRIPTIONS ---------

Descriptions of the projects contained in the FY 99 work plan follow. Lead agency and FY 99 project cost (including Service overhead, where applicable) are shown in parentheses. A project's total "outyear cost" is shown after the project description. Outyear cost is the estimated funding needed from FY 2000 through project completion. For Program Management and other ongoing projects, outyear cost represents annual cost. The projects are listed by recovery element, in the order that they appear on Table 2 (pages 10-13). Projects are not necessarily numbered consecutively, since project numbers have remained unique since FY 94.

More detailed descriptions of each project can be found in the Revised Scopes of Work for FY 99 Work Plan Activities available from the U.S. Fish and Wildlife Service, Colorado River Recovery Program, P.O. Box 25486, Denver, Colorado, 80225 (or contact Angela Kantola at 303/236-2985, ext. 221 or Angela_Kantola@fws.gov).

I. IDENTIFY, PROVIDE AND PROTECT INSTREAM FLOWS

A. INSTREAM FLOW PROTECTION

8. HMG/90-: 15-Mile Reach Gage Operation and Maintenance (FWS>CO, $4,500, Section 7 funds.)

The U.S. Geologic Survey operates a gage to monitor flows in the 15-Mile Reach of the Colorado River between the Grand Valley diversions and the confluence of the Gunnison River. This gage is used to aid in scheduling releases from Ruedi Reservoir and other water sources, to provide a benchmark for future video or aerial photography, and to provide a basis for refining flow recommendations. Total outyear cost: $4,500+/year.

9. HMG/91-: Water Acquisition Consultant (FWS, up to $20,000, Section 7 funds.)

As-needed services of a consultant for water rights appraisals and yield analyses of water rights offered to the Recovery Implementation Program. A 3-phased approach is used, consisting of: a) a reconnaissance-level evaluation of basic information about a water right, its benefit to the Program, and a recommendation as to whether the Program should try to acquire the right; b) detailed analysis of yield and benefit to the Recovery Program, and an appraisal of market value; and c) case-by-case analyses or investigations needed to lay foundations for future water right acquisition (e.g., return flow analysis, water availability studies, etc.). FY 99 funding may also be used as needed to supplement work of the geomorphology peer review panel. Total outyear cost: up to $20,000/year.

19H. HMG/85-: Hydrology Support for Water Acquisition Activities (FWS, $50,800)

Provides funding for hydrology support to Program water acquisition activities. Includes staff support for water rights investigations, assistance in negotiation of water leases from Ruedi Reservoir and Steamboat Lake, participation in Yampa River Recovery and Water Management Plan work group, assistance to Reclamation in monitoring coordinated

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reservoir operations, and participation in technical discussions regarding Colorado Water Conservation Board instream flow appropriations. Total outyear cost: $47,500+/year.

67. CAP/92--: Steamboat Lake Water Lease (FWS/CO, $32,000, Section 7 funds)

Long-term lease of 2,000 (and up to 3,300) acre-feet of water from Steamboat Lake to help stabilize late summer flows in the Yampa River to maintain habitat for Colorado squawfish. Total outyear cost: $32,000/year.

70. HMG/95-: Colorado Instream Flow Protection (CWCB, $185,000)

The Colorado Water Conservation Board will: review the scientific basis and prepare a notice of intent to appropriate instream flows for the two reaches from Rifle to the 15-Mile Reach of the Colorado River; continue to resolve objector's issues on existing filings on the Yampa River; and continue their involvement with the Yampa River Management Plan. Total outyear cost: To be determined based on progress in FY 99.

71. HMG/95-: Colorado River Decision Support System (CRDSS) (CWCB, $424,000)

Continued development of CRDSS basin models to assess physical and legal water availability to determine the amount of water available for instream flow appropriations and to provide information to determine the impacts of endangered fish flows on Colorado's ability to develop its full compact apportionment. CRDSS is intended to support better decision making with respect to utilization of Colorado River water resources. Total outyear cost: To be determined based on progress in 1999.

71a. HMG/9999: CRDSS Refinement: Little Snake River (CO, $35,000)

Update of the CRDSS model to extend the period of record through 1996, modeling all diversions in Colorado, including the High Savery Dam and Reservoir Project in Wyoming. Updating the model will allow the CWCB to evaluate: 1) impacts on the Little Snake River instream flow from different possible levels and patterns of future water development; 2) amounts, pattern, and priority of the base flow water right filing and implications of its enforcement; and 3) size and actual distribution of the "Carve Out," and upper limits on the potential increase of the Carve Out. Total outyear cost: $0.

96. HMG/9905: Operation and Maintenance of Duchesne River Gages (CUWCD, $11,200)

Operation and maintenance of two gages above the confluence of the Duchesne and Uintah rivers, and installation and operation of a temperature probe on the Green River Jensen gage. Data from these gages will be published in the annual water resource paper for Utah and also will be available on the Internet. The data will: provide a basis for refining flow recommendations in the Duchesne River; provide a benchmark for future video or aerial monitoring; and aid in scheduling releases from Duchesne River reservoirs and other water sources. Total outyear cost: $11,200+/year.

CAP-4c HMG96--: Redlands Diversion Gage Operation (BR, $9,200)

Gaging station on the Gunnison River below the Redlands Diversion Dam used to evaluate effects of flow releases on occupied habitat of endangered fish in the Gunnison River. Total outyear cost: $9,200/year.

CAP-11 CAP/9300: Grand Valley Water Management (BR, $2,015,200)

Modification, automation, and improvement of the Government Highline canal system to improve canal system efficiency and increase flows to the 15-mile reach through the Grand Valley Water User's Association (GVWUA) power plant. Activities in FY 99 include: continued coordination with GVWUA; continued work to finalize the water protection plan; continued canal system modeling; development of a method to reimburse GVWUA for any increase operation and maintenance costs; and design and specification of the automation facilities. Construction of canal improvements will begin contingent upon completion of the basin-wide Section 7 consultation, the operation and maintenance funding agreement, contracting for the construction, and the NEPA document. Total out year cost: $2,564,800.

CAP-14 CAP/9403: Coordinated Reservoir Operations (CWCB, $50,000)

Ongoing voluntary coordination of the operation of various reservoirs in the Colorado River basin upstream of the confluence of the Colorado and Gunnison rivers with the goal of enhancing the spring peak flows in the 15-Mile Reach to improve endangered fish habitat. Total outyear cost: $50,000/year.

94/CAP24 CAP/9800: Duchesne River Coordinated Reservoir Operations (BR, $50,000)

Identification and evaluation of opportunities to coordinate operations of various reservoirs in the Duchesne River Basin with the goal of delivering water to the lower Duchesne River to improve important habitat for Colorado squawfish and razorback sucker. Total outyear cost: $70,000.

CAP25 CAP/9900: Facilities Management Options for Colorado River Water Division #5 (CWCB, $200,000)

The CWCB will contract for a water availability study to benefit endangered fish. The primary purpose of this study is to: define additional options for enhancing peak flows in the 15-Mile Reach of the Colorado River (e.g., temporary capacity within existing storage diversion facilities, operating power facilities differently, and construction of new facilities); identify impediments to delivery of higher peak flows; and define solutions for any impediments to delivery of higher peak flows. A secondary purpose is to identify options of providing flow enhancements during the late summer/early fall. Total outyear cost: estimated at $300,000.

17. HMG/90--: Basinwide Channel Monitoring (FWS, $30,200)

The channel monitoring program supports Recovery Program efforts to develop flow recommendations, restore flooded bottomlands, and monitor the physical conditions of the rivers in the Upper Colorado River Basin. Different sites have been monitored each year. In FY 99, all of the Green River channel monitoring work accomplished since 1991 will be summarized in a comprehensive report. The report will identify and describe the previous work, all cross sections surveyed by the channel monitoring and floodplain restoration programs will be mapped, survey data will be reduced to table form, and geomorphic data will be summarized. Minimal field work is planned in FY 99 while the report is being developed; however embeddedness monitoring in the Colorado River may be added (within existing budget). Total outyear cost: $35,000/year.

19B. HMG/85-: Hydrology Support for Biological Research (FWS, $53,900)

Provides hydrology and temperature data to researchers. Activities include: collecting and analyzing temperature data; coordinating and monitoring Flaming Gorge and Aspinall releases; scheduling and monitoring Ruedi and Wolford Mountain reservoir releases; providing hydrology support for researchers developing flow recommendations (developing information on historic flows, Section 7 baseline flows, and peak flow); and participating in the Duchesne River work on coordinated reservoir operations and flow protection. Total outyear cost: $48,000/year.

53. HMG/8699: Flaming Gorge Integration Report (BR, $10,000)

Hydrology support for completion of Flaming Gorge integration report. Total outyear cost: $0.

54. HMG/9297: Aspinall Unit Studies - Synthesis of Studies Conducted for the Biological Opinion on Operation of the Aspinall Unit (FWS/UT/CO, $0)

Completion of the synthesis reports the 5-year Aspinall studies. Funds have been carried over from FY 98 to complete this work. Total outyear cost: $0.

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84. HMG/9701: Duchesne River Biological Studies (FWS, UDWR $157,400)

The goal of this study is to provide biological (fish distribution and relative abundance) and physical-habitat (channel morphology and maintenance) data for testing and/or refinement of the existing preliminary flow recommendations for the Duchesne River to facilitate recovery of the endangered fishes. Total outyear cost: $300,000.

85. HMG/9801: 15-Mile Reach Channel Monitoring (FWS, $16,400)

Coordinated releases from upper Colorado River reservoirs are intended to augment flows to improve Colorado squawfish spawning, rearing, and nursery habitats, and to prevent further loss of habitat. Releases are planned and timed to accomplish several objectives, including flushing fine sediment from the gravel bed, transporting gravel bed material, and improving access to backwaters. This study provides detailed information on the geomorphic effects of the coordinated releases through surveys of previously-established main channel and backwater cross sections, by monitoring changes in substrate characteristics, and by assessment of larger-scale changes in channel morphology using aerial photographs. Total outyear cost: $42,800.

86. HMG/9800: Peer Review of Geomorphological Studies (FWS, $10,000)

Geomorphology has become an important aspect of flow recommendations, with high flows often recommended based on the need to maintain a channel morphology that provides backwater and main channel habitats for endangered fishes. Also, channel monitoring is becoming increasingly important as the Recovery Program moves from instream flow identification to flow protection. To ensure that these projects are designed properly, a peer review panel has been established to:

1) Review and comment on all new scopes of work containing a geomorphological component. Determine if the proposed methodology will achieve the objectives of the scope, and if not, make recommendations on how to modify study design so the objectives can be accomplished efficiently and effectively.

2) Review draft reports containing a geomorphological component as part of the Program's approved peer review process. Provide comment on the use and interpretation of data.

Peer review panel activities in FY-99 will include (but not be limited to) review of the geomorphological-related components of the Aspinall and Flaming Gorge flow recommendations and "Green River and Yampa Basin Sediment Monitoring Program," part of capital project 9. The peer review panel may review other geomorphological work or flow recommendations at the request of the Biology, Water Acquisition, or Management Committee. Total outyear cost: $10,000.

CAP-9 CAP/9303: Yampa River Basin Endangered Fish Recovery and Water Management Plan (FWS, $205,600) (Additional funding may be approved later in the fiscal year, contingent upon the outcome of the synthesis report and the purpose and need statement.)

The Yampa River is widely regarded as the most important river in the Upper Colorado River Basin to the maintenance and recovery of the endangered fishes. The goal of the Yampa plan is to provide water for existing and future human needs, provide and protect the instream flows and habitat needed to maintain and recover the endangered fishes, and protect other native fish and wildlife resources in the Yampa River Basin. Objectives of the plan are to:

Develop a framework to address issues raised by the Service, the Yampa Basin Partnership, and others.

Determine if and how much water is needed to augment late summer/early fall flows for the endangered fishes in the Yampa River under current and future conditions (the years 2105 and 2040).

Determine if existing diversion structures on the Yampa River are barriers to fish migration, and if so, remediate the problem.

Review/update 1990 consumptive use projections describing the amount of water that is needed to meet human needs under current conditions and in short- and long-term.

Develop and implement actions to reduce/minimize the impacts of nonnative fishes from existing storage projects and activities implemented through the Yampa Plan.

Ensure coordination, where appropriate, between the Yampa Plan, and any actions that may be identified by Colorado as it develops the Aquatic Management Plan for the Yampa River.

Develop a purpose and needs statement for the Plan pursuant to NEPA.

Identify and evaluate alternatives pursuant to NEPA. (Possible enlargement of Elkhead Reservoir as well as other structural and non-structural alternatives will be fully evaluated.)

Document analyses pursuant to NEPA.

Develop and implement a formal agreement among appropriate parties to implement the preferred alternative.

The Yampa Public Involvement Plan also is a part of this project. Total outyear cost of the Yampa River Basin Endangered Fish Recovery and Water Management Plan is approximately $29 million (assuming Elkhead Reservoir enlargement with no cost share).

II. HABITAT RESTORATION

CAP-4b HMD/9600: Redlands Fish Passage Evaluation (FWS, $79,800)

The fish passage structure on the Gunnison River at Redlands Diversion Dam was completed in FY 96. The structure has been used by 43 Colorado squawfish and more than 20,000 other native fishes since its construction. Operation, maintenance, and follow-up evaluation of the structure continue in FY 99 with radiotelemetry of Colorado squawfish, monitoring fishes captured in the fish trap, and maintenance of the structure. Total outyear cost: $64,800.

CAP-17b HMD/9699: Grand Valley Irrigation Company Passage Evaluation (FWS, $28,300)

Analyses of field data and preparation of final report on fish use of passage at Grand Valley Irrigation Company Diversion Dam on the Colorado River. Total outyear cost: $0.

CAP-5 HMD/9300 Price-Stubb Fish Passage (BR, $675,000)

The 15-foot Price-Stubb Diversion Dam is about 3 miles upstream of the upper end of the 15-Mile Reach and has been a barrier to upstream fish passage since near the turn of the century. It was originally used to divert water to a hydraulic pumping plant to pump irrigation water to the Palisade and Mesa County Irrigation Districts. That water is now delivered through the Government Highline Canal, but Price/Stubb was kept in place as a backup system. After 80 years of no use, the hydraulic pumps have been removed and the intake canal filled. Pre-construction activities for fish passage at Price-Stubb will be conducted in FY 99, with construction planned for FY 2000. Total outyear cost: $1,300,000.

CAP-15 HMD/9800: Evaluation of Tusher Wash Diversion (UDWR, $15,000)

The Tusher Wash Diversion, built in 1906, spans the Green River approximately 8 miles upstream from Green River, Utah. The goal of this study is to determine if this diversion structure restricts native fish movement or entrains native fish (and thus, whether construction of a fish passage structure or entrainment screens are needed). Field work was conducted in FY 98, data analysis and a final report will be completed in FY 99. Total outyear cost: dependent on recommendations for passage.

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---------- APPENDIX A: FY-99 PROJECT DESCRIPTIONS ----------

CAP-23 HMD/9901: Grand Valley Project Diversion Dam Passage (BR, $420,000)

Pre-construction activities for fish passage at the Grand Valley Project Diversion Dam on the Colorado River will be conducted in FY 99 and FY 2000. Construction is planned for FY 2001. Total outyear cost: $3,080,000.

CAP-26 HMD/9901: Hartland Diversion Dam Passage (BR, $50,000)

The Hartland Diversion Dam is located at about river mile 60 on the Gunnison River. In 1996, the Fish and Wildlife Service made recommendations for fish passage at this structure. In FY 99 a preliminary study will be conducted to identify and develop alternative fish passage options. Hydrologic, hydraulic, geological, topographic, and structural data will be collected and analyzed and a report prepared outlining the recommended alternative. Total outyear cost: $1,750,000.

95(CAP-6SE) HMD/9800: Selenium Effects on Larval Razorback Sucker (LFL, $43,400, with an additional $35,000 funded by NIWQP)

Although selenium occurs naturally in Colorado River aquatic habitats, human activities have elevated concentrations. Adverse effects of elevated selenium levels on fish include reduced growth and survival. This study is testing predictions of equations that describe adverse effects from exposure of larval razorback sucker to ambient levels of selenium in water and food throughout the Colorado River Basin. Larval razorbacks will be exposed to water (and food grown in water) taken from four potential razorback nursery habitats in the upper Colorado River Basin. Total outyear cost: $14,900.

97(CAP-6SE-NF) HMD/9900: Selenium Effects on Razorback Suckers vs. Other Native Fishes (LFL, $31,900 with an additional $30,400 funded by NIWQP)

Selenium levels in some razorback sucker habitats are above EPA criterion for protection of freshwater aquatic life and elevated levels of selenium have been measured in adult fish. However, the significance of these findings is uncertain because co-occurring native fishes, such as the flannelmouth sucker, remain relatively abundant in the Colorado River. This study will quantify the relative sensitivity of razorback sucker and flannelmouth sucker to dietary selenium exposure. Total outyear cost: $16,300.

75. HMD/96–: Floodplain Issue Paper (FWS, $0 [previous year funding carried over])

Phase I of this project identified gaps in the existing habitat restoration program to determine what needs to be done in the way of additional floodplain protection and prevention of additional floodplain degradation. Phase II of this project will identify and evaluate cooperative, incentive-based opportunities for protecting the floodplain from further degradation; culminating in an action plan which the Program will begin to implement in FY 2000. Total outyear cost: unknown (will depend on what is recommended for implementation).

CAP-6 HMD/9399: Floodplain Restoration (BR/FWS, $2,738,700)

Restoration and enhancement of floodplain function to assist in recovery of endangered fishes within the upper Colorado River basin. Ten floodplain sites (8 along the Green and 2 along the Colorado river) have been restored via levee removal, and results will continue to be evaluated as part of the levee removal strategy and via the basin-wide monitoring/evaluation program.

The land acquisition component of the floodplain restoration program will continue to pursue additional easement or purchase agreements on floodplain properties with willing landowners. To date, 14 owners of more than 3,000 acres along the Green River, 7 owners of ~180 acres along the Colorado River, and 2 owners of 80 acres along the Gunnison River have shown interest in selling their land (or easements).

Experimental floodplain manipulation will be conducted at the following sites:

> Gravel pits at 29-5/8 road and the Jarvis site along the Colorado River near Grand Junction - have been reconfigured to allow seasonal fish use and will continue to be monitored in FY 99.
>
> Walter Walker (along the Colorado River at RM 164) - has been used to test selenium remediation techniques. Data analysis and final reports will be completed in FY 99.
>
> Old Charley Wash - this floodplain depression along the Green River was restored to test hypotheses on floodplain habitat and razorback restoration. In years when flows at Jensen exceed 14,000 cfs, Old Charley Wash will be managed to provide larval/YOY razorback rearing habitat. In years when flows are between 11,000 and 14,000 cfs, Old Charley will be used to remove nonnative fishes from the Green River. In dry years, Old Charley will be managed to enhance wetland health.

Total outyear cost: FY 2000 cost estimated at $2,683,900.

III. REDUCE NONNATIVE AND SPORTFISH IMPACTS

59. NNA/9599: Nonnative Fish Management in the Green River - Pilot Removal (UT, $20,000)

Implementation of a fish control project to effectively reduce negative interactions between nonnative fish (e.g., centrarchids, channel catfish, and small cyprinids) and native fishes in the Green River in Utah. Catfish have been removed from the Gray Canyon reach (RM 328-338) and centrarchids and catfish have been removed from the Ouray reach (RM 246-266) to determine if removal is effective and feasible. In FY 99, a final report will be prepared with recommendations on the effectiveness/feasibility of large-scale removal of target species from these reaches. Total outyear cost: $0.

87. NNA/9801: Small Nonnative Cyprinid Removal

87-A Cyprinid Removal in the Lower Colorado and Green Rivers, Utah (UT, $87,500)

The goal of this study is to remove nonnative cyprinids from the lower Colorado and Green rivers to benefit native fishes (primarily Colorado squawfish and razorback sucker) and to determine flow regimes that may suppress cyprinid abundance. Nonnative cyprinids will be removed from backwaters in 3 10-mile reaches on the lower Colorado River (RM 110-100, 65-55, and 20-30) (5 weeks beginning on the descending limb of the hydrograph) and in a 50-mile reach in the lower Green River (RM 100-50) (5 weeks beginning before runoff). Total outyear cost: $104,400.

87-B Removal of Nonnative Fishes from Backwater Habitats in the Colorado River in Colorado (CDOW, $54,000)

The goal of this study is to remove small nonnative cyprinids and centrarchids from backwaters in the 15- and 18- mile reaches of the Colorado River to benefit native fishes. All backwaters within each study reach will be sampled once a week for 3-4 weeks preceding and up to spring runoff in June (this period precedes Colorado squawfish spawning). Total outyear cost: to be determined.

88 NNA/9899: Yampa River Channel Catfish Removal (FWS, $90,800)

Channel catfish are a threat to most life stages of Colorado squawfish, humpback chub, and razorback sucker in the Yampa River. The goals of this study are to: determine if mechanical removal of channel catfish can reduce their population size in the lower Yampa River; estimate the cost/benefit of such removal efforts; and make recommendations for basinwide catfish control. Multiple capture methods (electrofishing, trammel nets, hoop nets, fyke nets, angling, etc.) will be used to conduct a large-scale, intensive removal effort in the Yampa River between river miles 10 to 46. A draft report will be prepared in the fall of 1999 and the final report will be prepared in the winter of 1999. Total outyear cost: $0

89 NNA/9802 Colorado River Centrarchid Removal (FWS, $56,200)

The goal of this study is to increase survival of age-0 Colorado squawfish and other native fishes by reducing piscivorous, nonnative centrarchids in riverine backwaters where they are suspected of preying on juvenile, native fishes. All backwaters from the Grand Valley Diversion Dam downstream to the top of Westwater Canyon will be electrofished twice prior to runoff and twice following runoff for three years. Total outyear cost: $117,000.

98 NNA/9801 Translocation of Northern Pike from the Yampa River (LFL, $93,700)

The goal of this project is to improve survival of endangered fishes in the Yampa and Green rivers by reducing the number and preventing successful reproduction of northern pike in the Yampa River. Pike will be collected intensively for about 8 weeks in the early spring as backwaters and tributaries fill during the ascending limb of the hydrograph when the pike typically congregate in off-channel habitats for spawning, feeding, or resting. Pike will be translocated to an acceptable off-stream fishery (to be selected by CDOW) that is accessible to Yampa Valley anglers. Total outyear cost $210,000.

CAP-18 NNA/9602: Reclamation of Ponds in the Floodplain along the Upper Colorado and Gunnison rivers. (CDOW, $272,000)

The goal of this study is to reduce the potential for predation and competition on endangered fish through chronic escapement of centrarchid sportfish from floodplain ponds along the Upper Colorado and Gunnison rivers. Specific objectives are to: 1) assess ponds as problematic/non-problematic through inventory and sampling; 2) reclaim, control water levels in, reshape, or isolate at least 10 ponds in 1999 and up to 150 ponds through 2002; 3) monitor and minimize reinvasion of nonnative fishes in treated floodplain ponds and escapement of nonnatives from ponds outside the treatment area using screening or other anti-escapement devices/strategies; and 4) determine if nonnative fish control in floodplain ponds on a river-reach scale contributes significantly to reductions in the abundance of nonnative fishes in existing riverine nursery habitats. Total outyear cost: $815,900.

CAP-20 NNA/9800: Fish Screening Device at Highline Reservoir (BR, $88,000)

Screening of Highline Lake near Fruita, Colorado is recommended to reduce or eliminate continuous introduction of nonnative fishes into the mainstem Colorado River. In FY 99, plans and specifications will be prepared for recommended screening and construction of the screen will be completed. Cost may be higher than currently estimated. Total outyear cost: operational costs to be determined.

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IV. PROPAGATION AND GENETICS MANAGEMENT

5. STK/9300: Bonytail Reintroduction (UT, $96,000)

The overall goal of this study is to reestablish bonytail in the Upper Colorado River Basin. Since late FY 97, bonytail have been stocked in the Professor Valley area of the Colorado River. Beginning in late FY 99, bonytail also will be stocked in the Green River near the town of Green River. Stocked fish are monitored to determine the number and size to stock to maximize survival. Both bonytail and roundtail are radio-tagged and monitored to determine movement and the potential for habitat overlaps. Total outyear cost: $92,000.

29. STK/91–: Propagation and Genetics: Facilities Operation and Maintenance (FWS/UDWR, $623,000)

Operation and maintenance of facilities responsible for high priority genetics management activities, including: developing and implementing the Annual Propagation Facilities Operation Plan; holding priority endangered fish stocks in refugia; producing broodstocks; and producing fish for field and laboratory research, information and education, and augmentation or restoration stocking. Outyear costs: ~$677,200/year.

a. Grand Valley Endangered Fish Facilities ($210,800)
c. Wahweap ($83,000)
d. Ouray Endangered Fish Hatchery ($308,000)
f. Razorback sucker broodstock collection ($21,200)

93. STK/98: Potential Hybridization in *Gila* Following Bonytail Reintroduction (UDWR, $0)

The Recovery Program discontinued funding for this project in FY 99, but the delayed FY 98 work (jointly funded by the Program and Utah) will be completed in FY 99. Total outyear cost: $0.

CAP-7 CAP/9400: Propagation Facility Expansion (FWS/BR, $390,000)

Construction of facilities necessary to produce sufficient captive-reared endangered fishes for conducting laboratory and field research and to develop broodstocks and back-up refugia with genetic diversity similar to the wild stock used as founders. Activities in FY 99 include completion of construction at Grand Valley and Ouray, construction of a residence (cost-shared with Utah) at Wahweap, and purchase of pit tags for augmentation stocking. Total outyear cost: FY 00: $500,000.

99. STK/9999: Develop and Supply Larval Squawfish Food (FWS, $16,900)

The Service's Bozeman Fish Technology Center will conduct a study to determine the best feed for maintaining survival and producing rapid growth in intensive Colorado squawfish culture. Total outyear cost: $0.

100. STK/9900: Review of Hatchery Facilities and Operations (FWS, $0)

Construction of major Program propagation facilities will be completed by spring/summer 1999. In FY 99, an ad hoc propagation committee consisting of the managers of these hatchery facilities will be convened to plan how to achieve production of numbers of fish called for in approved stocking plans. In FY 2000, operational plans developed by each facility will be reviewed by a selected panel. The panel also will visit each facility as part of their review. Total outyear cost: $15,000.

NEW STK/99??: Stocking Translocated Colorado Squawfish Between Palisade & Rifle (FWS, $5,600)

If approved by the Biology Committee, this project will move Colorado squawfish from the 15-Mile Reach to the Palisade-to-Rifle reach. Total outyear cost: to be determined.

V. RESEARCH, MONITORING, AND DATA MANAGEMENT

15. RMD/89--: Larval Fishes Identification (BR, $50,000)

Contract issued to the Larval Fish Laboratory in Fort Collins, Colorado, to identify larval fishes collected as part of the Interagency Standardized Monitoring Program. Also backlog cataloging and ongoing curation will be conducted in FY 99. Total outyear cost: ~$53,800/year.

16. RMD/85--: Database Management (FWS, $34,500)

Recovering and delisting the endangered Colorado River fishes will require a thorough understanding of the interrelationships of the fishes and their environments. Those relationships can be understood through extensive analyses of data. Data are maintained in computerized form, to facilitate analyses. Specific tasks include: maintaining database; summarizing data; providing annual listing of files; and providing annual listing of all PIT-tagged fish. Total outyear cost: $35,900+/year.

22. RMD/85--: Standardized Monitoring Program (FWS/CO/UT, $623,100)

Populations of the endangered fishes are monitored to determine their status and trends and to develop population indices necessary to determine the efficacy of management programs and progress toward species recovery. ISMP monitors post-larval squawfish,

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late-juvenile and adult squawfish, humpback chubs, and razorback suckers. Sympatric species also are monitored. Monitoring has been expanded considerably in an effort to determine effects of ongoing recovery actions. Total outyear cost: ~$600,000.

50. RMD/9401: Evaluation of Razorback Sucker Stocking (FWS, $52,800)

The goal of this project is to stock three size groups of razorback suckers in the Gunnison and upper Colorado rivers and evaluate success. Total outyear cost: $108,000 (estimate).

22g. RMD/9999: Assessment of ISMP Population Estimates (FWS, $10,000)

The effectiveness of population estimation procedures in the expanded interagency standardized monitoring program (ISMP) will be evaluated and recommendations for improvements to FY 99 sampling efforts will be made. Total outyear cost: $0.

101. RMD/9999: Contribution of Tributaries to Recovery (FWS, $25,000))

The goal of this work is to review available data and provide recommendations regarding the role of tributaries in recovery of the endangered fishes. Total outyear cost: $0.

102. RMD/99--: Maintain IMO Model (USU, $10,900)

In FY 98, a life-history model was completed for the four endangered fishes. In FY 99, additional data will be incorporated into the model. Total outyear cost: to be determined. The Program does not foresee a need to update the IMO model every year, but it will need to be updated periodically.

VI. INFORMATION, EDUCATION, AND PUBLIC INVOLVEMENT

A. Public Involvement Plans

These public involvement plans correspond to specific projects in the FY 1999 work plan.

PIP-1 I&E/96--: Colorado Instream Flow Protection (CWCB, $0 [Colorado providing $12,500 in-kind funding])

The Colorado Water Conservation Board's goal is to appropriate and protect endangered fish recovery in-stream flow water rights in the targeted reaches that both meet the needs of the Recovery Program and protect Colorado's ability to develop its compact entitlements. This will require the support of the interested communities and minimum opposition in water court adjudication proceedings. The news media will be used to educated all affected publics about the rights and process for acquiring instream flow rights, so that they can provide meaningful input at key points in the legal and decision-making processes. Colorado also will expand their efforts to work directly with selected publics affected by these processes. Total outyear cost: to be determined.

PIP-3 I&E/97-- Yampa River Endangered Fish Recovery and Water Management Plan (FWS, $1,000)

This activity is intended to provide an avenue for effective local involvement in the development of the Yampa River Plan; enhance the public's and key stakeholders appreciation of the uniqueness of the Yampa River and the endangered fish; involve the public in the NEPA process; coordinate with anglers to develop a plan for addressing nonnative fish impacts while providing recreational fishing opportunities; enhance the image of the Service and the Recovery Program in the eyes of the public and key stakeholders as a credible entity to develop the Yampa Plan in a timely and responsible manner; and increase support in the water, scientific, and environmental communities for the Yampa Plan. Total outyear cost: to be determined.

PIP-4 I&E/96--: Capital Improvement Projects in the Area of Grand Junction, Colo. (BR, $30,000)

Public involvement will be used to help develop public awareness, support and/or informed consent for the Grand Valley water management project (GVWM) and fish passage on the Colorado River at the Price-Stubb Dam and the Grand Valley Project Diversion Dam. Reclamation will hold meetings with water users and the Service for completing Section 7 consultation on GVWM, will participate in the 15-Mile Reach Strategy Workgroup discussions, draft and distribute the EA for public review, consider all input in finalizing the EA, and hold meetings with PAI's. On the fish passage, Reclamation will meet directly with affected interests to discuss fish passage design, announce the proposal to the media and PAI's, and prepare the EA and newspaper articles. Total outyear cost: ~$30,000/year.

PIP-5 I&E/96--: Coordinated Reservoir Operations (BR, $4,200)

Public involvement on coordinated reservoir releases in the upper basin to supplement the water supply and assist in attaining the target flows for the critical habitat reach of the Colorado River. Activities include preparing press releases, public announcements, and conducting public meetings. An extensive mailing list has been assembled too keep interested parties informed. Public meetings will be scheduled as needed to explain annual operating plans for each participating reservoir and to receive public comment. Total outyear cost: $4,200/year.

PIP-6 I&E/96--: Ruedi Reservoir Releases (BR, $10,000)

The goal of the Ruedi releases is to provide supplemental water to enhance flows in the 15-mile reach. Proposed public involvement tactics include public meetings and forums, use of the Recovery Program newsletter to disseminate information on activities, news releases, and individual mailing on specific proposals. Reclamation will meet with interested parties to identify issues and concerns regarding an interim water delivery agreement. Total outyear cost: Not identified.

PIP-7 I&E/96--: Flaming Gorge Releases (BR, $56,000 [The Recovery Program may fund all or a portion of these costs])

The purpose of this plan is to allow affected publics to provide input into possible operational parameters for Flaming Gorge Dam and to receive information on a regular basis on the operation of the dam. Public involvement tactics include coordinating three or four meetings of the Flaming Gorge operations working group, arranging an annual public meeting on spring releases from Flaming Gorge, and distributing information on dam releases to the public. Total outyear cost: to be determined.

PIP-8 I&E/96--: Floodplain Restoration (FWS, $16,900 funded under CAP-6)

The goal of the habitat restoration program is to restore or enhance natural floodplain function that supports recovery of endangered fish in the upper Colorado River basin. Public involvement strategies include: direct contact with key publics; direct mailings of pertinent Floodplain Habitat Restoration and Recovery Program information; media relations and use of exhibits and displays; and using the Land Acquisition Coordinator (Dave Soker) to foster relationships with area residents and officials, and develop flow easements for floodplain properties. Total outyear cost: $~15,000/year.

PIP-10 I&E/96--: Public Involvement on Removal and Control of Nonnative Fishes in Colorado and Gunnison River Floodplain Source Ponds (CDOW, $0 [FY 98 funds remaining])

The goal of this activity is to conduct public involvement on activities pertaining to nonnative fish control issues in the Colorado and Gunnison rivers. In FY 99, an incentive package will be developed for landowners participating in nonnative fish removal/control and habitat restoration activities. Also, public forums will be scheduled, and routine print media coverage will be provided. Total outyear cost: to be determined.

PIP-12/13 I&E/98--: Utah Combined Public Involvement (UDWR, $200)

Utah will provide an opportunity for the public to learn about and provide input on Recovery Program activities at two Public Regional Advisory Council meetings. The Division of Wildlife Resources and the Division of Water Resources also will keep the public informed about important project developments through news releases and story leads provided to news reporters. Total outyear cost: to be determined.

PIP-14 I&E/98–: Coordinated Public Involvement (FWS, $10,000)

The goal of this project is to coordinate public involvement plans on key Recovery Program activities, including nonnative fish control, habitat restoration, land acquisition, pond reclamation, dam operations, construction activities, instream flows, water rights appropriation, etc. Internal regional meetings will be held with Program participants in the Colorado/Gunnison and Green rivers to review status of public involvement activities and to identify issues and problems to be addressed. Draft regional coordination plans will be developed. Total outyear cost: ~$10,000/year.

B. Information and Education Coordination

12. I&E/89--: Information and Education Coordination (FWS, $28,000)

The I&E scope of work includes providing support to all local public involvement plans; arranging public involvement training; coordinating and promoting presentations to key groups; continuing to produce news releases, the newsletter, status report and Congressional budget request; producing a simplified one-page annual report; producing additional fishing field identification cards; and developing videotape footage. Total outyear cost: $69,000 in FY 2000 (if a second public attitude survey is conducted).

VII. PROGRAM MANAGEMENT

Program management supports the vital day-to-day participation in the Program by the Service, Reclamation, Colorado, Utah, and Wyoming. Each has one or more full-time staff members coordinating Recovery Program activities within their agency (or agencies) and with other Program participants.

1. PMG/88–: Utah Program Management (UT, $71,100)

Costs associated with Utah's participation in technical committees and administration and oversight of studies sponsored/conducted by the State of Utah. Total outyear cost: $75,300+/year.

2. PMG/88--: Bureau of Reclamation Program Management (BR, $150,000)

Costs associated with administration and oversight of studies sponsored/conducted by the Bureau of Reclamation in support of the Recovery Program. Total outyear cost: $150,000/year.

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3. PMG/88-: Fish and Wildlife Service Program Management (FWS, $762,300)

This scope of work includes ongoing Service program management which includes the costs of salary, travel, benefits, and miscellaneous expenses of the Service Program Director, Assistant Program Director, and all coordinators, as well as costs associated with Service participation in technical committees and administration of studies sponsored or conducted by the Service. The goal of the Program Director's office is to ensure timely and effective planning, implementation, coordination, and administrative support of the Recovery Program. Total outyear cost: $760,000+/year.

4. PMG/88-: Colorado Program Management (CO, $110,000)

Costs associated with administration and oversight of technical studies sponsored/conducted by the State of Colorado and Colorado's participation in technical Committees. Total outyear cost: $110,000+/year.

5. PMG/94-: Wyoming Program Management (WY, $12,000)

Costs associated with Wyoming's participation in technical committees and subcommittees. Total outyear cost: $12,300+/year.

CAP-21 MG/96--: Capital Projects Coordination (BR, $381,000)

Costs associated with coordinating overall implementation of capital improvement projects. Activities include summarizing project expenditures, preparing annual budget documents, developing and executing contracts, coordinating capital projects within Reclamation, developing preliminary cost estimates for new activities, and developing annual work plan budgets. Total outyear cost: $381,000+/year.

END

10-22-99